

DOOR LEAF ACTUATOR

## Description

- [0001] The invention is directed to a hydraulic door leaf drive with a door closer.
- [0002] Door leaf drives are sufficiently known and are used, for example, to drive rotating doors. They have a mounting plate on which are mounted the individual components of the door leaf drive, e.g., a power supply, a drive unit, a pump, a door closer, and a switch block. When the door leaf drive is defective or damaged, the entire door leaf drive must generally be dismantled in order to repair or replace the defective component. This is time-consuming and expensive.
- [0003] Therefore, it is the object of the present invention to overcome the disadvantages mentioned above and to provide a door leaf drive which is constructed in a simple manner and is easy to service but which nevertheless has only small dimensions.
- [0004] This object is met through the features of claim 1.
- [0005] According to the invention, the door leaf drive, which has a system carrier on which a door closer and other components are arranged, is constructed in such a way that the drive axle of the door closer lies as close as possible to one end of the system carrier in order to keep the so-called rear axle dimension as small as possible, since the latter affects the total kinematics of the drive.
- [0006] A pump with a hydraulic block connected to it and a drive motor is attached to the door closer. By means of this arrangement, when the door closer is detached from the system carrier, the pump, hydraulic block and motor are removed at the same time. Therefore, this subassembly can easily be exchanged and also disassembled. Additional hydraulic lines are obviated because the pump is flanged on directly and also because of the hydraulic block, since the connection channels lead through the pump and the hydraulic block directly into the door closer. Further, the quantity of hydraulic fluid can be kept low due to this measure.
- [0007] A control board is located above the door closer and is fastened to it.
- [0008] A power supply which is likewise fastened directly to the system carrier in addition to the door closer is placed next to the motor.
- [0009] A switch block comprising a plurality of switches, e.g., a power supply switch, a program switch or other switches with special functions, is provided on the side of the door

closer at the end of the system carrier so as to be acoustically decoupled from the housing. The switches can be covered by a cover panel which can be matched with respect to color.

[0010] The above-described construction of the door drive according to the invention is encased by a hood. This hood is fixed, e.g., by pins which engage in recesses on one side and by retaining springs.

[0011] As a result of this construction, a door leaf drive is provided in which the individual components can be easily and quickly exchanged. Further, this construction provides a particularly compact door leaf drive that facilitates assembly.

[0012] The subclaims contain advantageous further developments of the invention.

[0013] Further details, features and advantages of the invention are given in the following description of a preferred embodiment example with reference to the drawings.

[0014] Figure 1 shows a perspective view of the door leaf drive, according to the invention, from one side;

Figure 2 shows a perspective view of the door leaf drive, according to the invention, from the other side; and

Figure 3 shows a side view of the door leaf drive according to the invention.

[0015] The door leaf drive according to the invention has a system carrier 1 which is fastened to a door, a door frame, or the like, not shown. The individual components of the door leaf drive are arranged on or in the system carrier 1. The system carrier 1 is at least partially U-shaped.

[0016] As is shown in Figure 1, a power supply 2 is located at one end of the system carrier 1. Connected to this power supply 2 are a drive motor 3, a hydraulic block 4 with a pump 5, a door closer 6 and a switch block 7 which is arranged at the end of the system carrier 1 lying opposite from the power supply 2. The door closer 6 is mounted on the system carrier 1 in such a way that its driven axle 8 is arranged as close as possible to one end of the system carrier 1.

[0017] Although the hydraulic block 4 lies in front of the pump 5 in Figure 1, this sequence can be reversed so that the pump 5 lies in front of the hydraulic block 4.

[0018] The pump 5 and the hydraulic block 4 are flanged to the door closer 6 only by means of clamping screws 15 proceeding from the drive motor 3. Valves, chokes, connections, etc. are provided in the hydraulic block 4 for controlling the door drive.

[0019] A control board 9 that is provided with bore holes 10 through which valves 11 arranged at the door closer 6 are accessible and adjustable is provided above the door closer 6.

[0020] According to Fig. 2, the switch block 7 that is provided at one end of the system carrier 1 is constructed as an insulated block with three switches which can serve, e.g., as power supply switch, program switch and venting switch. Naturally, more switches or fewer switches can also be provided.

[0021] The system carrier 1 is provided with fastening openings 12 which hold the door drive at the door, door frame or the like by fitting them on to screws that are already mounted and by lateral displacement. The screws are then tightened and the door drive is mounted.

[0022] The entire system carrier 1 can be provided with a cover hood, not shown, which covers all components of the door leaf drive with the exception of the switches of the switch block 7. If desired, this cover hood can be provided in different colors allowing it to be integrated within its surroundings or adapted according to individual taste.

[0023] The system carrier 1 is provided with locking recesses 13 on one side for supporting the cover hood; locking pins arranged at the cover hood can engage in these locking recesses 13. The locking recesses 13 are arranged on the side of the power supply 2 in the present embodiment example. On the other side (the side of the switch block 7 in the present embodiment example) the system carrier 1 is provided with retaining springs 14 which secure the cover hood.

[0024] The preceding description of the invention serves, according to the present invention, for purposes of illustration only and not to limit the invention. Various changes and modifications are possible within the framework of the invention without departing from the scope of the invention and its equivalents.

[0025] Reference Numbers

- 1 system carrier
- 2 power supply
- 3 drive motor
- 4 hydraulic block
- 5 pump
- 6 door closer
- 7 switch block
- 8 driven axle
- 9 control board
- 10 bore holes
- 11 valves
- 12 fastening openings
- 13 locking recesses
- 14 retaining springs
- 15 clamping screws